



EFJohnson's Viking® Solution portfolio offers products catering to mission critical communication systems. Viking P25 subscribers offer a broad set of capabilities to fully meet the communication needs of our customer networks with interoperability, reliability, and maximum flexibility.

# 5100 ES

7/800 MHz | VHF | UHF

Featuring AES encryption and the AMBE+2 vocoder which provides loud and clear audio, the 5100 ES portable radio is durable and interoperable.



## RUGGED & RELIABLE

- Lightweight aluminum casting & polycarbonate housing is strong and has optional immersion rating
- Meets applicable MIL Standard 810 C, D, E, and F specs
- FM intrinsically safe

## P25 COMPLIANT

- Supports P25 CAI (Common Air Interface)
- Trunked and conventional system protocols
- Over-the-Air rekeying (OTAR) functionality

## ACCESSORY SUITE

- Complete line of accessories including speaker mics, cases, batteries, and chargers

## FLEXIBLE

- Compatible with Motorola® System v 7.x and Motorola Astro®
- SMARTNET® II/SmartZone® interoperability
- Up to 864 talkgroups
- Supports narrowband (12.5 kHz) & wideband (25 kHz) channel spacing with multiple system protocols
- MDC-1200 and GE-Star signaling
- Over-the-Air programming (OTAP) option enables you to program radios in the field
- Industry-standard encryption capabilities such as AES, DES-OFB, and DES
- Easy radio programming & feature updating with EFJohnson's PC Configure™ software



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**EFJohnson**  
TECHNOLOGIES

# TYPICAL PERFORMANCE SPECIFICATIONS

# 5100 ES 7/800 MHz | UHF | VHF

GENERAL	700/800	VHF	UHF
Frequency Range	762-806 MHz 806-870 MHz	136-174 MHz	380-470 MHz
Channel Spacing	12.5 kHz, 25 kHz		
Max Freq. Separation	Full Bandsplit		
FCC Type Acceptance Certification	ATH2425171	ATH2425111	ATH2425131
Canada Type Certification	IC:933B-2425171	IC:933B-2425112	IC:933B-2425131
FCC Emissions Designators	11K0F3E, 16K0F3E, 14K0F3E, 8K10F1E, 8K10F1D	16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D	16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D
Input Voltage	7.2 V		
Dimensions (w/o antenna) HxWxD	6.7" x 2.52" x 1.8" (6.4 cm x 17.0 cm x 4.6 cm)		
Weight (w/o standard battery)	11 oz. (312 g)		
Case	Polycarbonate-black, yellow   Immersion rated option available for all housings		
Temperature Range	-30°C to +60°C		
Vocoder	AMBE+2		

Transmitter	700/800	VHF	UHF R1
RF Power Output	2.5/1 W (700 MHz) 3/1 W (800 MHz)	5/1 W	4/1 W
Frequency Stability (-30°C to +60°C)	±1.5 ppm		
Modulation Limiting 25 kHz Channels	±5 kHz		
Modulation Limiting 12.5 kHz Channels	±2.5 kHz		
Emissions (Conducted/Radiated)	-75 dBc		
Audio Response	+1, -3 dB		
FM Hum and Noise 25 kHz Channels	-40 dB		-45 dB
FM Hum and Noise 12.5 kHz Channels	-35 dB		-40 dB
Audio Distortion	2%		

Receiver	700/800	VHF	UHF R1
Audio Power Output	500 mW		
Frequency Stability (-30°C to +60°C)	±1.5 ppm		
Analog Mode Sensitivity: 12 dB SINAD	0.25 uV (-119 dBm)		
Digital Mode Sensitivity: 5% BER	0.25 uV (-119 dBm)		
Selectivity: 25 kHz Channels	-75 dB		
Selectivity: 12.5 kHz Channels	-63 dB		
Intermodulation	-75 dB		
Spurious & Image Rejection	-75 dB		
FM Hum and Noise 25 kHz Channels	-40 dB		
FM Hum and Noise 12.5 kHz Channels	-35 dB		
Audio Distortion	2%		

Battery	Dimensions (HxWxD)	Weight	Approx. Life (5/5/90)
Extra-High Capacity NiMH	6.0" x 2.3" x 0.85"	12.96 oz	UHF/VHF: Minimum 10 hours 700/800 MHz: Minimum 12 hours
Extra-High Capacity NiMH, IS	6.0" x 2.3" x 0.85"	12.96 oz	UHF/VHF: Minimum 10 hours 700/800 MHz: Minimum 12 hours
Lithium Polymer	6.2" x 2.3" x .81"	7.9 oz	UHF/VHF: Minimum 10 hours 700/800 MHz: Minimum 12 hours

Specifications are measured per TIA 102.CAA-B, TIA 102.CAAB-B and per TIA 603-C. All EFJohnson radios are made in the U.S.A.

All specifications are subject to change without notice. Please check our website for the latest revision. 6.18.14 © Copyright 2014 EFJohnson

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## Environmental Specifications



Environment	Mil Spec	810F
	M	P
Low Pressure	500.4	II
High Temp.	501.4	I, II
Low Temp.	502.4	I, II
Temp. Shock	503.4	I
Solar Radiation	505.4	I
Rain/Blown Rain	506.4	I, III
Humidity	507.4	NA
Salt Fog	509.4	NA
Dust and Sand	510.4	I
Vibration	514.5	I (24)
Shock	516.5	I, IV
Immersion*	512.4	I

M=Method, P=Procedure, \*=Optional  
Also meets equivalent superseded C, D and E standards.

## Encryption Options



Supported Encryption	AES, DES, DES-OFB
Encryption Key/Radio	64 Common Key Reference (CKR), 64 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Synchronization	CFB-Cipher Feedback OFB-Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) Approved random number generator
Encryption Type	Digital
Key Erasure	Keyboard Command
Code Key Initialization	Internal Pseudorandom Generator
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

## Factory Mutual Approvals



Intrinsically Safe		C. Ethylene D. Propane and Methane E. Conductive metal F. Carbonaceous material coal, coke dust G. Grain dust and flour
Class I/ Class II	Division 1 An area where there is or could be an explosive atmosphere most of the time in normal conditions.	
Class III	Division 1 Location in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.	Ignitable fibers or flyings
Non-incendive		
Class I	Division 2 An area where an explosive atmosphere exists only as a result of a fault.	A. Acetylene B. Hydrogen C. Ethylene D. Propane and Methane